KING COUNTY OFFICE OF INFORMATION RESOURCE MANAGEMENT

LSJ Integration Project Analysis Phase
Data Exchange Models

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MTG Management Consultants, L.L.C.
1111 Third Avenue, Suite 2700
Seattle, Washington 98101-3201
206.442.5010 206.442.5011 *fax*
www.mtgmc.com

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I. INTRODUCTION

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King County is in the process of defining business and technology requirements necessary to improve information sharing between existing and future systems. The intent of this project is to define the desired business and technical environment and the steps to be undertaken in order to meet the objectives outlined in the vision. This includes the development of an integrated business model, a data model, and a management review. These products will be used to define information exchanges that will be implemented over 1 to 2 years.

During the last year, the county has taken steps toward building an integrated justice system through the development of operational and technical analyses and the Law, Safety, and Justice (LSJ) Strategic Integration Plan. Within this project, the approach is to leverage the work already completed by the county as well as other counties and states to define a future vision for King County's next generation of justice systems.

The three phases of the project will provide Integrated Business Models, Data Exchange Models, and an Independent Verification and Validation (IV&V) for the King County LSJ program, forming the basis for the county's integrated justice efforts. This stepwise implementation and refinement is a practical method for successful implementation of the complex criminal justice information-sharing environment.

A. DOCUMENT SCOPE

This document is the Final Data Exchange Models deliverable that describes the current King County LSJ data environment. It forms a common data architecture for the King County LSJ community. These data models are based on the work flow models and use case models developed in the previous phase of this project.

The focus of this document is an analysis of the data exchanged during the adult and juvenile criminal justice work flows. It was developed through a series of small and large group meetings with the primary stakeholders in the LSJ Integration project.

B. APPROACH

The approach utilized to determine the data elements and relationships necessary to support LSJ involved establishing business requirements and data element standards, then defining, consistent with the standards, the data elements necessary to satisfy the requirements. This approach is shown

in EXHIBIT I. The detailed steps taken in the approach are described below and provide the background necessary for understanding the contents of this document.

1. Defined Work Flow Models

Basic LSJ requirements and processes were determined through identification by the LSJ stakeholders. Individuals from each of these agencies were interviewed to determine current business processes and information-sharing needs. Consistent with the scope of this project, specific attention was paid to business processes affecting the following functional and information areas:

- Adult felony cases.
- Adult misdemeanor cases in King County District Court.
- Juvenile cases.

These processes were documented as detailed work flow models for each phase of the adult and juvenile criminal justice processes. Standard forms associated with these and other appropriated business areas were gathered in order to establish information-sharing requirements.

2. Defined Use Case Models

Information exchanges were identified for use case modeling by focusing on the interagency flows arising from the requirements and work flows. For each information exchange, the business context was described in terms of participating agencies, basic information to be exchanged, and conditions under which information is to be exchanged.

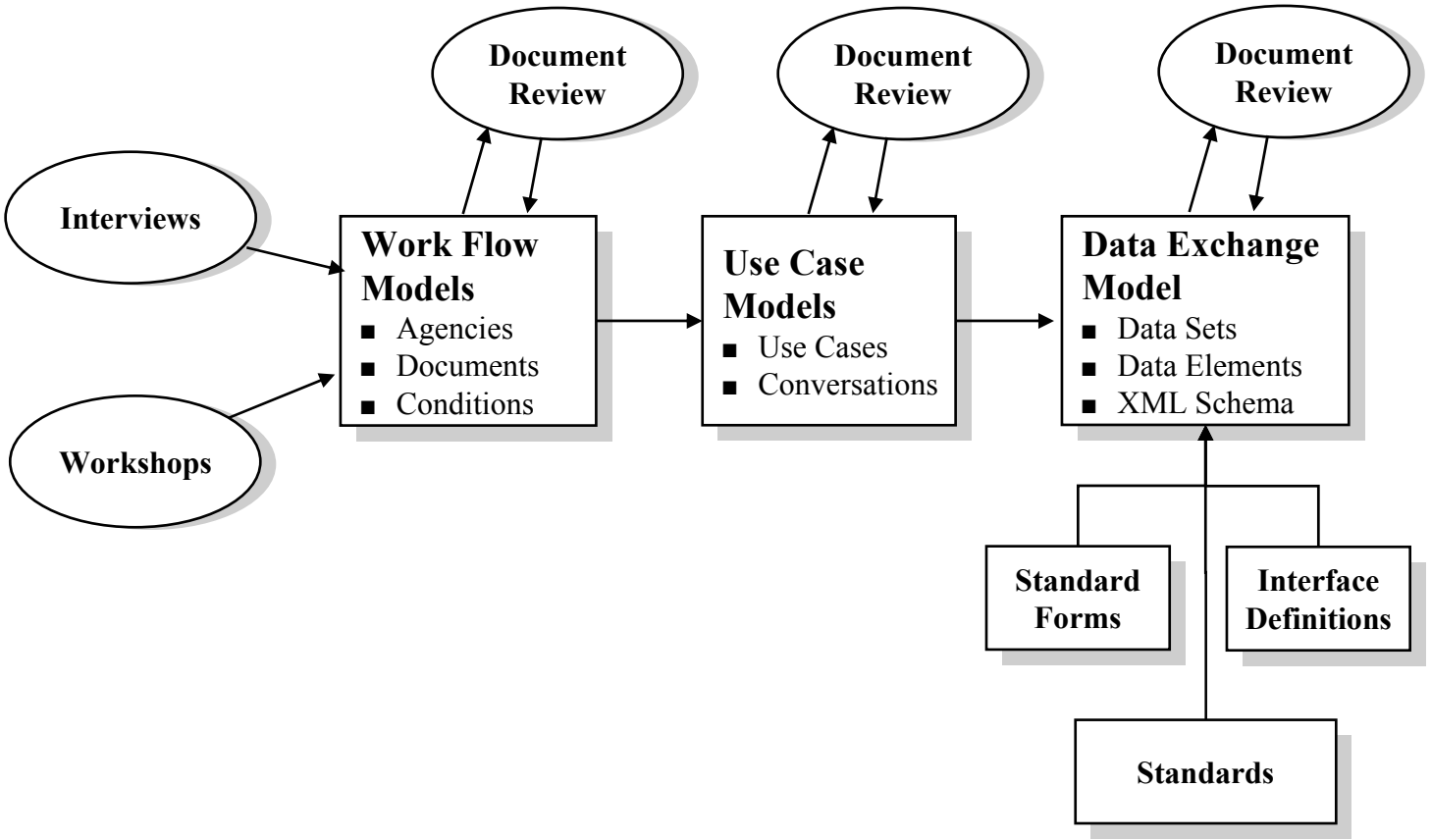
3. Reviewed Existing Data Architectures and Data Element Standards

The next step in the process involved defining the Data Exchange Models for each of the information exchanges identified in the previous two steps. However, significant amounts of work have been spent prior to this project to define information required to enable LSJ information exchanges. Results of these efforts were used as starting points for identifying candidate information exchanges and data groups and elements to support them. Specifically, an initial list of data elements was culled from previous work by Jack Morgan to describe the data elements used in PROMIS interfaces with CMIS and JAMMA.

State resources were also utilized in identifying and defining data elements. These include source documents used in the criminal justice process at the state levels, as well as data element listings from existing state-level systems. These sources include:

KING COUNTY OFFICE OF INFORMATION RESOURCE MANAGEMENT
LSJ INTEGRATION PROJECT ANALYSIS PHASE

DATA EXCHANGE MODEL APPROACH



- Washington Justice Information Network (JIN) Data Architecture.
- Washington State Patrol Washington Crime Information Center (WACIC) and Washington State Identification System (WASIS) system listings and rap sheet standard.
- Washington State Patrol Live-Scan fingerprint submission standards.
- Washington Administrative Office of the Courts Superior Court Management Information System (SCOMIS) and District Court Information System (DISCIS) systems listings.

Reliance upon all of the resources mentioned above helps ensure that the LSJ data architecture presented in this document will leverage previous efforts, provide for compliance with federal reporting requirements, and support information exchange within the state of Washington.

4. Analyzed Existing Information Exchanges

The list of initial data elements was refined by analysis of the physical documents or electronic information exchanges that currently implement the exchange. Many additional data elements were identified and added, and some data elements that did not relate to the actual exchanges were moved through this process.

The structure of the documents and electronic exchanges were captured by defining groups of related data elements as data sets and associating documents with data sets and data sets with data elements.

5. Determined Naming Standards

Standards for data element naming were determined by reviewing established data architecture standards. Justice XML Data Dictionary (JXDD) 2.1.2 was selected as the basis for the data elements. Justice XML is the evolution of an effort that was originally funded by the Department of Justice (DOJ) to reconcile differences between four other XML standards:

- Criminal History (rap sheet) standards established by a joint task force of SEARCH, FBI Criminal Justice Information Services Advisory Policy Board (CJIS APB), and NLETS.
- LegalXML Court Filing standard.
- Bureau of Justice Assistance Regional Information-Sharing Systems Law Enforcement Intelligence standard.
- American Association of Motor Vehicle Administrators (AAMVA) Driver Histories XML standard.

The LSJ data element naming standards are detailed in Section II.

6. Established the LSJ Data Dictionary

Specific data elements necessary to satisfy LSJ business requirements were determined based on the results of the previous steps. The specific name, format, and codes for each data element were determined by reviewing the use of the element and any existing data element standards. These standard data elements form the basis for the LSJ Data Element Dictionary and are listed in APPENDIX B of this document.

C. DOCUMENT CONTENTS

The remainder of this document is presented in three sections:

- *Data Architecture Framework* – Discusses standards used in developing this data architecture and guidelines for naming data elements.
- *Data Element Dictionary* – Contains a listing of all data elements currently in the dictionary, including names, definitions, formats, and sources.
- *XML Schema Generation* – Describes the process of automatically generating a common schema for King County LSJ conforming with Justice XML.

II. DATA ARCHITECTURE FRAMEWORK

II. DATA ARCHITECTURE FRAMEWORK

This section describes the framework for describing the documents, data sets, and data elements in the LSJ data architecture. The framework consists of the following subsections:

- Data Dictionary Standards
- Data Element Naming Guidelines
- Data Element Class Words
- Data Set Naming Guidelines

A. DATA DICTIONARY STANDARDS

In order to define the data elements within the LSJ Data Element Dictionary, a number of message-related data standards must first be defined. These standards identify the content and structure requirements necessary to uniformly transmit data electronically in a meaningful way between two trading partners. Data-oriented standards required to support the messaging environment include:

- Character Set
- Data Elements
- Data Types
- Composite Data Elements

Each of the above data definition components is defined in detail below.

1. Character Set

All data element values shall be constructed using both the basic character set and the extended character set. The basic character set is used for all data elements, except for those defined with the variable character data type.

- Basic Character Set

  The basic character set consists of uppercase letters (A to Z), digits (0 to 9), special characters, and the space character. The special characters are the following:

  ! “ & ‘ | * ( ) + , - . / : ? =

- Extended Character Set

  An extended character set may be used for variable-length fields. The extended character set includes those characters in the basic character set, lowercase letters (a to z), and additional special characters. The additional special characters are the following:

  % @ [ ] _ { } \ ¦ < > ~ # $

2. Data Elements

The data element is the smallest named unit of information in the standard. Data elements are identified as either simple or component. A data element that occurs as an ordinary positioned member of a composite data structure is a component data element. A data element that occurs in a segment outside the defined boundaries of a composite data structure is a simple data element.

3. Data Types

A data element data type defines the kind of information stored in a particular data element. Data element types and length characteristics are based on the ANSI X12.6 EDI Application Control Structure standards and are described below.

- Numeric (NUM)

  A numeric data element is represented by one or more digits with an optional leading sign representing a value in base 10. It is used when the position of the decimal point within the data is permanently fixed and is not to be transmitted with the data. Leading zeros are omitted when transmitting data.

- Decimal Number (DEC)

  A decimal data element contains an explicit decimal point and is used for numeric values that have a varying number of decimal positions. The decimal point always appears in the character stream if it is at any place other than the right end of the screen. If the value is an integer, the decimal point should be omitted. For negative values, the leading minus sign is used. Leading zeros are omitted when transmitting data.

- Fixed Character (CHAR)

  A fixed-length character string is a sequence of any uppercase characters from the basic character set. This data type should be space-filled to satisfy length. Significant data should be left-aligned.

- Variable Character (VARCHAR)

  A variable-length character data element is a sequence of uppercase and lowercase characters from the extended character set, and it contains at least one nonspace character. The significant characters shall be left-aligned. Leading spaces, when they occur, are presumed to be significant characters.

- Date Time (DATETIME)

  A date and time data element is used to express the standard date and time. Date is expressed in CCYYMMDD format for date, in which CC is the century, YY is the year, MM is the month, and DD is the day; while time is expressed in HHMMSSd...d format in which HH is the hour for a 24-hour clock, MM is the minute, SS is the second, and d...d is decimal seconds. The numbers are left-aligned, and seconds and decimal seconds are optional.

- Time (TIME)

  A time data element is used to define a recurring point in time, such as a curfew. It is expressed in HHMMSSd...d format in which HH is the hour for a 24-hour clock, MM is the minute, SS is the second, and d...d is decimal seconds. The numbers are left-aligned, and seconds and decimal seconds are optional.

- Image (IMAGE)

  This is nontextual data element in the form of an image that enables capturing of photographs.

4. Composite Data Elements

The composite data structure is an intermediate unit of information in a segment. By definition, a composite data structure consists of two or more component data elements preceded by a data element separator. Each component data element within the composite data structure, except the last, is followed by a component element separator.

B. DATA ELEMENT NAMING GUIDELINES

Data element name standards apply to all data identified in the LSJ Data Dictionary. The names used in these standards are the full-word, fully spelled names that are contained in the data dictionary. Each data element name consists of three constructs in the order presented below.

- *A prime word designator*. Prime words identify business information objects (or entities) to which the data element (or attribute) belongs (e.g., Person). A data element name must begin with at least one prime word.
- *Modifier words or adjectives*. These words further describe the data element (e.g., Last). Modifier words are optional.
- *A class word designator*. A class word designator categorizes or classifies a data element according to its use in business processes or procedures (e.g., Name). A data element name must end with a class word. Class word designators are further described below.

These naming guidelines provide for simple identification of the position and role of each data element within the LSJ data architecture.

C. DATA ELEMENT CLASS WORDS

Class words further define the type of data maintained within a data element. They are global descriptors that assist the reader in understanding the format and content of the data in a data element. All of the data element names have been suffixed by one of the following class words:

Class Word:	**CODE**
Examples:	State Code
Definition:	Identifies classifications, categories, or types of data (such as male, female, other). This class word can also contain abbreviations.
Explanation:	Exceptions to this rule can be made. Codes that are limited in number and unlikely to change can be given any suitable number of positions and can embed meaningful values. For example: PERSON GENDER CODE CHAR(1) Values: F=Female, M=Male
Format:	CHAR(1)…CHAR(9).

Class Word: **COUNT**

Examples: Agency Population Count

Definition: The total number of units or quantity (including fractions) of anything except monetary amounts.

Explanation: All fields used for tallying or representing a quantity shall be signed if negative. A signed counter is necessary in the event of a negative tally from an arithmetic operation. For example, a negative on-hand quantity of an item could occur from a faulty prior inventory or shrinkage (theft).

Format: NUMERIC(1-255,0)

Class Word: **DATE/TIME**

Examples: Arrest Date/Time

Definition: A point in time expressed in CENTURY, YEARs, MONTHs, DAYs, and time denoted in a military time format.

Explanation: All date fields will be in Gregorian (not Julian) format and will accommodate (from left to right) a two-digit century, two-digit year, two-digit month, and two-digit day. By configuring all date fields in this way, we can avoid turn-of-the-century conversion errors. This format also can facilitate date sort processing because all date fields are in collating sequence. As with date fields, if time is represented with a format of HHMMSS, it is in a natural collating sequence. TIME data elements can have four, six, or eight digits.

NOTE: This format would apply to intersystem transactions, not necessarily to presentation formats.

Format: DATE/TIME

Class Word: **DAYS**

Examples: Jail Time Suspended Days

Definition: A duration or quantity of time measured in terms of days.

Explanation: DAYS is used to represent the increment of 24 hours from any start time, not specific to a month or year.

Format: NUMERIC(1-255,0)

Class Word:	**DAY**
Examples:	Meeting Day
Definition:	The standard abbreviation for the name of a day of the week.
Explanation:	None.
Format:	CHAR(3)

Class Word:	**DESCRIPTION**
Examples:	Agency Description
Definition:	Data having undefined, free-form, unstructured, or unformatted content that is used to describe another item of information and that is not an address or name.
Explanation:	Generally used within a lookup table to explain the meaning of a code. For example, the PLACE OF BIRTH table has two data elements, CODE and DESCRIPTION.
Format:	VARCHAR

Class Word:	**HOURS**
Examples:	Unit of Service Hours
Definition:	A duration or quantity of time measured in units of hours.
Explanation:	None.
Format:	NUMERIC(1-255,0)

Class Word:	**FLAG**
Examples:	Person Registered Sex Offender Flag
Definition:	An indicator that identifies whether a condition exists or is undefined. Compare with INDICATOR.
Explanation:	A data element with the FLAG class word is a one-character field that contains an X if the condition exists or is null if the condition is not known.
Format:	CHAR(1)

Class Word:	**INDICATOR**
Examples:	Multiple Clearance Indicator
Definition:	Used to indicate one of three possible conditions or states. Contrast with FLAG or CODE.
Explanation:	An indicator represents a binary condition with the capability of marking a nonresponse as "unknown." Only one of the three values, if specified, is permitted, as explained below. Values: N = No, Y = Yes, Null = Unknown
Format:	CHAR(1)

Class Word:	**MINUTES**
Examples:	Arrival Time Minutes
Definition:	A duration or quantity of time measured in units of minutes.
Explanation:	None.
Format:	NUMERIC(1-255,0)

Class Word:	**MONEY**
Examples:	Sentence Suspended Money
Definition:	The quantity of monetary amounts.
Explanation:	All dollar amounts should always be signed. This will reduce confusion and conversion between signed and unsigned fields and will avoid truncation and error if an arithmetic operation results in a negative amount that is moved to an unsigned field. An 11-position field will allow for the storage of up to $999 million. This will provide for significant growth and (hopefully) all future rates of inflation.
Format:	NUMERIC(11,2)

Class Word:	**MONTHS**
Examples:	Jail Time Suspended Months
Definition:	A duration or quantity of time measured in units of months.
Explanation:	None.
Format:	NUMERIC(1-255,0)

Class Word:	**NAME**
Examples:	Person Name
Definition:	A word or phrase that constitutes the distinctive designation of a person, place, or thing.
Explanation:	None.
Format:	VARCHAR

Class Word:	**NUMBER**
Examples:	Fingerprint Card Number
Definition:	A numeral or combination of numerals, letters, or other symbols used to identify something.
Explanation:	None.
Format:	VARCHAR (length defined by data element)

Class Word:	**PERCENT**
Examples:	Breathalyzer Test Percent
Definition:	A number that represents a ratio between two quantities or the result of an arithmetic division.
Explanation:	All percentage fields will be expressed as 9.9999, where 1.0000 = 100 percent and 0.0750 = 7.5 percent. By representing all percentage fields using the same format, truncation, rounding, and conversion errors can be minimized.
Format:	DEC(6)

Class Word:	**RATIO**
Examples:	Jail Bed Ratio
Definition:	A number that represents the relative size of two quantities expressed as the quotient of one divided by the other.
Explanation:	None.
Format:	DEC(8)

Class Word:	**SECONDS**
Examples:	Response Seconds
Definition:	A duration or quantity of time measured in units of seconds.
Explanation:	None.
Format:	NUMERIC(1-255,0)

Class Word:	**TELEPHONE**
Examples:	Agency Telephone
Definition:	Identification of a telephone number.
Explanation:	Includes area code. No formatting characters are stored.
Format:	CHAR(10)

Class Word:	**TEXT**
Examples:	Incident Text
Definition:	Data having undefined, free-form, unstructured, or unformatted content and that is not an address or name. Contrast with NAME, DESCRIPTION, and ADDRESS.
Explanation:	None.
Format:	VARCHAR

Class Word: **VALUE**

Examples: Property Value

Definition: The value of an item in monetary amounts.

Explanation: All dollar amounts should always be signed. This will reduce confusion and conversion between signed and unsigned fields and will avoid truncation and error if an arithmetic operation results in a negative amount that is moved to an unsigned field. An 11-position field will allow for the storage of up to $999 million. Contrast with MONEY.

Format: NUMERIC(11,2)

Class Word: **YEAR**

Examples: Vehicle Model Year

Definition: An identifier that describes the particular calendar year an item was made or an event occurred.

Explanation: Year is four positions to accommodate a two-digit century. For use if only a year needs to be specified, without any other date information. See DATE.

Format: NUMERIC(4); format is CCYY

Class Word: **YEARS**

Examples: Prison Time Years

Definition: A duration or quantity of time measured in units of calendar years, or 365 days.

Explanation: None.

Format: NUMERIC(1-255,0)

D. DATA SET NAMING GUIDELINES

Data set naming standards apply to all data sets identified in the LSJ Data Dictionary. The names used in these standards are full-word, fully spelled names. Each data set name consists of two constructs in the order presented below.

- *A document name*. Document names identify the document or group of documents that include the data set. A data element name must begin with a document name.
- *A document section name*. Document section names identify the section of a document or group of documents that are modeled by the data set. Document section names include the following:
  - *Information.* These data sets include any blocks of relevant data elements that may consist of a variety of data types, such as flags, descriptions, etc.
  - *Details.* These data sets include any data elements that are grouped by rows of data, such as the data listed in calendars.
  - *Header.* These data sets include data elements that can be grouped based on the visual introduction of a form, such as "court order header" and "report header."
  - *Image.* These data sets include data elements that are not textual but in the form of an image, such as for the sex offender documents.

These naming guidelines provide for simple identification of the role of each data set within the LSJ data architecture.

III. DATA ELEMENT DICTIONARY

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APPENDIX D presents the LSJ Data Element Dictionary. It summarizes the content and format of the dictionary and lists the standard data elements that have been defined for exchange of LSJ data.

For each data element listed in the dictionary, the following information is provided:

- *Name of Data Element* – Naming of data elements is based upon recognized data administration practices. Included at the end of each name is a data element class word that can be matched to the global data types.
- *Definition* – A description or definition of the data element provided in relationship to other data elements and the criminal justice process.
- *Data Type/Length* – This entry describes the format for coding the data based upon an approved list of class words or global data types. For example, the format and length of a data element with the name ending in a class word of DATE will be defined by the DATE data type, and a data element with the name ending in a class word of NUMBER will be defined by the NUMBER data type of VARCHAR and its specified length.
- *Source of Definition* – Many definitions are based on material from other standards or systems. Known sources for these references are listed.
- *Source of Code* – Many codes in this dictionary are based on national standards or on codes used in existing data systems. This field or entry cites the source of the codes listed in the dictionary.
- *Codes* – For each data element, permissible codes are listed with their interpretation or descriptions. For the final deliverable, potential coded data elements have been identified; however, no codes have been entered into the JEM (Justice Exchange Model) database tool.

IV. XML SCHEMA GENERATION

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In addition to the data architecture, a key objective of this phase of the LSJ Integration project is the development of common XML schema for representing the data architecture. This section describes the relevant standards for XML-based information exchanges and the process for developing the LSJ schema and is organized under the following subsections:

- XML for Information Exchange
- Criminal Justice XML Standards
- Justice XML Standard
- Washington JIN Schema
- King County LSJ Schema

A. XML FOR INFORMATION EXCHANGE

Public and private organizations collect and produce massive amounts of data, and the same data is managed differently in different companies and departments. Businesses and industries recognize that using standard formats for exchanging data enables the automated distribution of information across divisional boundaries and eliminates costly manual reentry of data. Using standard interface formats may also yield savings in storage and network requirements by enabling seldom-used information to be maintained in a single location and accessed only when it is needed.

The criminal justice process involves many federal, state, and local agencies that need to exchange information. However, different agencies have separate information systems and interfaces to those systems. Agencies deploying new criminal justice information systems or upgrading existing systems must select an architecture that will support messaging with the variety of organizations with which they share information and that will be reliable, scalable, manageable, and affordable.

Criminal justice organizations should consider standardizing their messaging using the emerging XML standards because:

- XML provides a good framework for business messaging.
- Industry-specific standards, such as the JTF Rap Sheet Standard and the LegalXML Court Filing Standard, simplify messaging between agencies within the same industry.

- General criminal justice standards, such as Justice XML and LegalXML, simplify messaging across the entire criminal justice process.

XML provides a good framework for business messaging.

Criminal justice organizations collect and produce massive amounts of data, and the same data is managed differently in different criminal justice operations. State and federal governments recognize that using standard formats for exchanging data enables the automated distribution of information across jurisdictional boundaries and eliminates costly manual reentry of data. Using standard interface formats yields savings in storage and network requirements by enabling seldom-used information to be maintained in a single location and accessed only when needed.

XML has emerged over the last 5 years to become the primary format by which structured data is exchanged on the World Wide Web. Organizations developing or upgrading their business messaging systems should consider standardizing on XML because:

- It simplifies network connectivity.
- It has robust support for defining data structures and layouts.
- XML support for business messaging is growing.

XML simplifies network connectivity.

The key reason for designing electronic business infrastructures around XML arises from its basis in commodity Internet technologies. XML was developed in 1998 by the World Wide Web Consortium (W3C) to be the standard for exchanging structured data on the Internet. Specifically, XML was designed to work well with the protocols that define the Internet, including the Transmission Control Protocol/Internet Protocol (TCP/IP).

Organizations worldwide have made significant investments in building their local and wide area TCP/IP networks and securely connecting them to the Internet. Using XML leverages these investments and positions the business messaging infrastructure to take advantage of future advances as Internet technologies continue to mature and develop.

Similarly, deploying e-business solutions using XML simplifies the addition of new trading partners in the future. Because most organizations are already connected to the Internet, they can connect to other Internet-based organizations using XML without an additional physical connection, assuming adequate security mechanisms.

Organizations are making significant investments in migrating their systems to Internet-based applications technologies such as the Web. XML is compatible with these application-layer protocols as well. In fact, XML documents look very similar to HyperText Markup Language (HTML) Web pages, because both HTML and XML were developed from an older standard for describing data structure and content called Standard Generalized Markup Language (SGML).

XML has robust support for defining data structures and layouts.

In addition to compatible network interfaces, messaging systems require a means for defining data formats. XML includes support for defining both simple and complex structures for exchanging data and for defining static and interactive presentations of the data.

There are two approaches to describing XML data sets: Document Type Definitions (DTDs) and XML schemas. While DTDs define the structure and data elements in simple XML documents, schemas include more support for rigorous and comprehensive definitions of XML documents and how components of an XML application fit together. Schemas also include a process for validating documents against corresponding schemas. If DTDs define only the structure of an XML document, schemas define the entire data dictionary.

In the XML model, data structure, layout, and content are defined in separate documents. Simple layouts and formatting of XML data are defined through style sheets created in the eXtensible Stylesheet Language (XSL). Style sheets format and present XML data similar to the way Microsoft Word styles assign different fonts, font sizes, and other formatting to different types of text. However, style sheets are limited to mostly static presentations of data. XML also supports interactive and animated layout through two application program interfaces (APIs): the Simple API for XML (SAX) and the Document Object Model (DOM) APIs.

XML support for business messaging is growing.

Owing to its support for commodity networks and robust data structures and layouts, XML has become a fundamental part of many e-business applications. However, XML by itself is not a complete solution for business messaging – it needs application-level standards for describing e-business content and commercially supported products that adhere to these standards. Since 1998, a range of XML-based business messaging standards and products have been developed, and new standards are still emerging. These range from rigidly defined standards, such as the Electronic Business XML (ebXML) Initiative to create an XML standard compatible with existing electronic data interchange (EDI) standards, to loosely defined standards, such as Microsoft's .NET environment for linking business applications through lightweight XML messages with minimal overhead.

A large number of public and private industry groups are recognizing the advantages of having XML-based standards and are working together to develop common XML standards for their industries. Some of the areas in which XML standards are currently in development include access control, biometrics, customer information management, election systems, electronic government, and security. Numerous on-line databases now provide XML interfaces, and an entirely new industry is emerging to provide outsourced applications through XML-based Web services.

B. CRIMINAL JUSTICE XML STANDARDS

Standards for the exchange of criminal justice information date back at least to the first use of radio and teletype by law enforcement in the 1920s. As communications technology has evolved and agencies in the justice system have become connected, the need for criminal justice information-sharing standards has only increased. Since 1998, several groups within the criminal justice system have developed vertical standards to facilitate exchange of information based on XML within their groups. These vertical standards simplify messaging between agencies in the same industry and include the following initiatives:

- The Rap Sheet JTF defines a standard for obtaining criminal histories.
- LegalXML defines a standard for filing court documents electronically.
- The Regional Information Sharing Systems (RISS) define a standard for sharing law enforcement intelligence information.
- The AAMVA defines a standard for obtaining driver histories.

The Rap Sheet JTF defines a standard for obtaining criminal histories.

Since 1966, federal, state, and local law enforcement agencies have cooperatively supported and utilized NLETS for the exchange of criminal history information. However, NLETS provides only a communications medium and does not define the format and content of criminal records. Consequently, there has been no standard rap sheet or method for combining or collating criminal histories from multiple sources into a single criminal record.

In 1996, a JTF was formed to create a national standard for rap sheets. The JTF included representatives from each of the following organizations:

- The FBI.
- The FBI CJIS APB.

- NLETS.
- The National Center for State Courts (NCSC).
- SEARCH.
- State and local law enforcement agencies.

In 1998, JTF released versions 1.0 and 1.01 of the Rap Sheet Standard based on the Data Format for the Interchange of Fingerprint, Facial, and Scar, Mark, and Tattoo (SMT) Information (ANSI/NIST-CSL 1-1993). However, these versions have not been implemented by the states or the FBI.

In 2001, JTF released Version 2.01 of the Rap Sheet Standard, which includes:

- A standard criminal history transmission format based on XML schemas.
- A standard criminal history presentation format using XML.
- A concept of operations for combining records from multiple sources into a single criminal history.

Over the next several years, the states and the FBI are expected to gradually implement the XML version of the Rap Sheet Standard. In the transition period, NLETS will provide the communications bridge between the states that do support the standard and those that do not. State systems will continue to request rap sheets as they do now:

- Through a request via the NCIC network to the FBI Interstate Identification Index (III) system.
- Through a request via the NLETS network to a single state criminal history repository.
- Through a fingerprint submission to the FBI that generates a III request.

Record requests made through the FBI/III may generate NLETS responses from multiple sources. NLETS will merge those responses into a single record with events listed chronologically, then send the combined record to the requesting agency. In addition, the requesting agency can choose to receive criminal history records in either transmission or presentation formats. NLETS will provide any necessary translation between these two formats.

LegalXML is considering adoption of the JTF Rap Sheet Standard as a standard for IJIS. However, there are differences between the Rap Sheet Standard and the LegalXML Court Filing Standard regarding the naming of data elements and the method by which XML documents are defined.

Reconciliation between these standards is under way as part of the Justice XML effort discussed in a later subsection.

LegalXML defines a standard for filing court documents electronically.

As of March 2002, the Consortium for National Case Management Automation Functional Standards, a joint project of the Conference of State Court Administrators (COSCA) and the National Association for Court Management (NACM), estimates that there are roughly 200 electronic court filing projects in place or in the planning stages around the country. If federal, state, and individual court filing systems are going to interoperate and share information, it is important that national interface standards for court systems be adopted soon.

COSCA and NACM, working together with LegalXML, Inc., a nonprofit organization that develops and promotes XML-based standards for the legal profession, have developed an XML-based national standard for the electronic filing of the following court documents:

- Filing documents, such as motions, pleadings, appeals, notifications, orders, and notices.
- Confirmations that filing documents were received and accepted or rejected by the court.
- Queries for court-specific policies and information.
- Responses to queries.

Although implementation of the LegalXML Court Filing Standard is not mandatory, COSCA, NACM, and NCSC are recommending that state associations adopt this standard and use it as a template for development of new case management systems.

Testing and implementation of the Court Filing Standard is already well under way by state and federal courts, state associations, and vendors. Many of these implementations are also incorporating proposed changes to the Court Filing Standard resulting from efforts to reconcile that standard with the JTF Rap Sheet Standard and the RISS Law Enforcement Intelligence Standard discussed below. As a result of these changes to improve compatibility with LegalXML and other standards, the Court Filing Standard now includes three types of data elements:

- Elements common to the Justice XML (LegalXML Integrated Justice) standards.
- Elements common to other LegalXML standards.
- Elements that are not common to Justice XML or other LegalXML standards.

The Court Filing Standard is currently the most developed of the LegalXML standards and is in much wider implementation than the Justice XML standards. Over time, as the Justice XML and other LegalXML standards continue to mature, it is likely that many elements which are currently specific to the Court Filing Standard will eventually become common to some of those standards as well.

RISS defines a standard for sharing law enforcement intelligence information.

The RISS Program is a federally funded program administered by the U.S. DOJ BJA consisting of six regional centers that coordinate the sharing of intelligence information between law enforcement agencies. The RISS Program targets criminal networks that operate across jurisdictional lines, especially organized crime, gangs, drug trafficking, and terrorism.

Central to the RISS Program is *http://www.iir.com/riss*, a secure Web-based nationwide network for sharing criminal intelligence used by thousands of law enforcement agencies. This network has enabled information sharing between agencies that has resulted in thousands of arrests and the seizure of millions of dollars in stolen goods and contraband. However, the full potential of information sharing across law enforcement agencies has yet to be realized because the Web interfaces have not yet enabled automated information exchanges or consolidation of information across agencies.

In 2000, RISS members developed the RISS XML Specification for standardizing information exchanges on *http://www.iir.com/riss*. RISS promotes the XML Specification as the preferred solution for data sharing between agency criminal intelligence databases and other RISS members. Although the complete scope and contents of the XML Specification are not available publicly (presumably for security reasons), many data elements in the RISS XML Specification have been included in the Justice XML reconciliation. Consequently, if the rap sheet and RISS standards are eventually implemented, law enforcement agencies will be able to easily cross-reference criminal intelligence with criminal histories.

AAMVA defines a standard for obtaining driver histories.

AAMVA developed an XML specification for performing driver history queries against the Driver Vehicle Data (DVD) system. The XML Driver History Query Specification supports queries based on the driver's license number, jurisdiction, name, date of birth, and Social Security number. If matching records are found in the Driver History Query System, the system will respond with any matching records, including:

- Driver identification.
- Licenses and permits.

- License restrictions and withdrawals.
- Aliases.
- Accidents and convictions.

In 2001, AAMVA worked with JTF on reconciling the AAMVA XML Driver History Query Specification with the Justice XML standards. Version 1.1 of the Justice XML standards, completed in 2002, included compatibility with the AAMVA XML Specification.

C. JUSTICE XML STANDARD

The standards created by the Rap Sheet JTF, LegalXML, RISS, and AAMVA have been developed independently and, consequently, have many overlapping and conflicting data elements. Recently, there have been efforts to reconcile these standards and create unified XML data dictionaries for criminal justice information systems. These initiatives have produced the following horizontal standards that simplify messaging across the entire criminal justice process:

- The Justice XML standard defines data elements common to most criminal justice applications.
- The set of LegalXML standards defines data elements common to most legal applications.

The Justice XML standard defines data elements common to most criminal justice applications.

Since March 2001, the DOJ OJP and the Global Justice Information Network (GJIN) have supported a Justice XML Working Group to create national XML standards for justice information. Founding members of the group include representatives from the following initiatives:

- JTF Rap Sheet Standard.
- LegalXML Court Filing Standard.
- RISS Law Enforcement Intelligence Standard.

These groups are assisted by standards experts from the U.S. Department of Commerce (DOC) National Telecommunications and Information Administration (NTIA) and work under a set of shared principles and procedures described in the document "Principles of XML Development for Justice and Public Safety."[1]

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[1] See *http://xml.coverpages.org/OJP-PrinciplesOfReconciliation.pdf*.

In September 2001, the Justice XML Working Group succeeded in reconciling 128 data elements and establishing relationships between the three standards. The three member groups are currently in the process of incorporating these elements and related changes into their standards. To date, the LegalXML Court Filing group has incorporated most of these reconciling data elements in the Court Filing 1.1 and 1.2 specifications and a revised version of the JTF Rap Sheet Standard is in development. The current state of the RISS XML Specification with regard to the reconciliation is not known publicly.

Data elements that will be common to the three standards are published as a JXDD that describes both simple and complex data elements. Simple data elements such as City and State define a single value. Complex data elements such as PostalAddress group together multiple simple data elements (e.g., AddressLine, City, State, PostalCode).

In December 2001, the Justice XML Working Group began working with AAMVA to reconcile the Driver History Query Specification with the other Justice XML standards. Justice XML 2.1 added support for new AAMVA elements and increased the total number of supported elements to 250.

In May 2003, the DOJ OJP released a "prerelease" version of the JXDD 3.0 specification to the public for review and comment. JXDD 3.0 significantly expands the number of data elements in the dictionary to over 5,000 elements. OJP is expected to release a revised version of JXDD in the fall of 2003.

The set of LegalXML standards defines data elements common to most legal applications.

LegalXML has developed an XML framework for the exchange of information between legal organizations that includes a number of subject-specific work groups, including Court Filing, Transcripts, Integrated Justice, and Legislation. Although these groups develop standards for their focus areas, they also work with each other to identify overlapping data elements and to eliminate conflicts. These data elements common to multiple LegalXML standards form a horizontal standard for information exchanges between legal applications in different subject areas.

In 2002, LegalXML became a member section of the Organization for the Advancement of Structured Information Standards (OASIS), an organization promoting compatibility in XML standards across industries. Membership in OASIS will help to improve dissemination of the LegalXML standards and improve interoperability between LegalXML and other XML standards outside the legal and criminal justice communities.

D. WASHINGTON JIN SCHEMA

In 2002, the Washington JIN developed a data architecture for use by state criminal justice agencies and local agencies interfacing to state agencies. The data architecture was developed in a similar approach to that utilized for the King County LSJ schema. However, the JIN schema was targeted for Justice XML 1.0 and was not necessarily designed for use by local agencies. Consequently, although there is some overlap between the JIN schema and the LSJ schema, the two schemas should not be considered compatible or interchangeable.

E. KING COUNTY LSJ SCHEMA

The Use Case Model deliverable described the process of modeling the information exchanges between King County LSJ stakeholders. This subsection describes the process for generating an XML schema for the documents, data sets, and data elements contained that make up those exchanges.

Based on recommendations by MTG Management Consultants, L.L.C., and the technical representatives from each LSJ agency, the LSJ steering committee chose to use Justice XML 2.1 as the baseline standard for developing an XML schema. Justice XML 2.1 includes 250 data elements and provides a template for describing data elements. Whenever LSJ data elements mapped directly to a corresponding Justice XML data element, the Justice XML data element was used. In addition, the Justice XML data element template was used for all data elements, including those that did map directly to Justice XML 2.1.

For those LSJ data elements that did not have corresponding Justice XML data elements, a function was applied that created an XML tag based on the data element name. Based on federal recommendations for XML naming, the function removed all white space from the data element name and converted the remainder to upper camel case format. Upper camel case format capitalizes the first letter of each word and converts the remaining letter to lowercase.

Justice XML does not include standards for data set or document naming. Therefore, the same function was used to create upper camel case XML tags based on the data sets and document names.

Finally, an additional function was developed to automatically generate a complete schema file based on the document, data set, and data element XML tags. The schema file conforms to the XML Schema Definition (XSD) format and presents a technical view of the same information as presented in APPENDIX A. The schema file is suitable for import into any development environment that supports XML schema-based data structures.